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Watt
1835

A

SYSTEM OF TABLES

ON

BRITISH MONEY,

WEIGHTS & MEASURES,

PROPERLY REFORMED.

BY JOHN WATT,

OF DULWICH COLLEGE.

LONDON:
PUBLISHED BY ROBERT ASH,
Engraver, Printer, Lithographer and Stationer,
5, WELLINGTON STREET, LONDON BRIDGE.
1835.

35.
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ENTERED AT STATIONERS' HALL.

INTRODUCTION.

I have often lamented, that a better system of Weights and Measures is not provided for Great Britain and Ireland. There have been many trials to accomplish the very desirable effect, but the last amendment which took place last sessions of Parliament, has been condemned by the Mansion-house police report. A respectable salesman of Leadenhall Market, in complaining to the Lord Mayor, said, the butchers found it *impossible* to compute in their bargains according to the new scale. The Lord Mayor told him to petition Parliament to alter it—which is a very strong proof of its very great imperfection.

The unnecessary and ridiculons accumulation of compound denominations might be altered greatly for the better, so that much less labour would be necessary, both for the hands and the head, of those who may calculate by Tables properly reformed.

By MY Improved Tables of Money, Weights and Measures, any school boy who understands the numeration table, may exactly explain and express what is wanted, from one grain to ten millions of grains, or from one-tenth of an inch to ten millions of inches; likewise in measures of capacity for all fluids, such as wines, spirits, strong waters, cyder, mead, perry, ale, beer, vinegar, &c.; and for dry wares, as corn, seeds, roots, fruits, salt, coals, sand, oysters, &c. from one ounce measure to ten millions of ounces.

A great excellency in my Tables, is their being so graduated, that it is not necessary to work with compound numbers, which are very troublesome for many people, to add, subtract, multiply or divide; but each number taken from my Tables is a single integer number, not higher than nine, and easily added, subtracted, multiplied or divided. In short, if Parliament were to appoint my system, there would be very little need for compound arithmetic.

Another great excellency of my Tables is, when a a buyer enquires the price of a stone, or a pound, or an ounce of any thing that is to be sold by weight—suppose a stone of tea—the seller says the price is six pounds six shillings the stone, the buyer will or may, then, by the plain directions given, in three or four seconds, find out the price of the pound, and the ounce, and the dram, &c. &c. without calculation. There are many millions of bargains made every day in England, Scotland and Ireland, and there are buyers and sellers in every inhabited house; and when we consider the shameful defects which still exist, year after year, it is therefore very plain, blame will attach somewhere, and every facility that can be given to remedy the existing defects must be a national benefit—nay, I may say, for the benefit of all Europe, or rather the whole world, for I do not think that there is in any nation in the world, a system of money, weights, and measures so plain and easily understood, and so effective as mine. I trust what follows, will appear to approximate perfection more than any scheme which has yet appeared in the world on weights and measures.

An Explanation and Use of the Tables.

In order that the Improved Tables of Weights and Measures should so act as to produce a desirable effect, I found it not only necessary to re-form the tables of weights and measures, but the table of British money also; and I am happy to think, that I have done it so effectually, that they act in perfect agreement, and mutually facilitate and assist each other in a wonderful way.

I hope the reader, and every person who may do any business in the new system of money, weights and measures, will please to recollect, that ten farthings make one penny, ten pence make one shilling, and ten shillings make one pound. The characters or mark, to point out the pounds, the shillings, the pence and the farthings, in the old system, are these: £ *s*. *d*. *q*. but in my new system, I represent the highest denomination or pounds, thus: £. shillings thus, *s*. pence thus, *p*. and farthings thus, *f*. The reader will likewise please to remember, that there must be no compound number in any denomination but the highest or pounds, and that is boundless; the denomination of decimals is likewise boundless.

The four New Tables of weights and measures differ so much from the Tables of Troy, Apothecaries, and

Avoirdupois weights and measures, that they are to be called British weights and measures.

In the table of British small weights, the grain is the same as the Troy grain, but all the higher denominations are very different—the table explains itself.

In the table of British large weights, the ounce is the same as the Avoirdupois ounce, but all the higher denominations are very different—the table explains itself.

In the table of British measures of length, the inch is the same as the English inch, but all the higher denominations are very different—the table explains itself.

In the table of British measures of capacity, the one ounce measure or cup, is in capacity large enough to contain, if full of common water, just one ounce avoirdupois, the pint ten ounces, the gallon one hundred ounces, &c.—but when any of these measures are filled with wine, brandy, or any other liquor, I cannot tell the weight of it, but the seller will be able to tell the price of it in British money.

There are thirteen tables of weights and measures now in common use, and all the business that is done by these thirteen tables may be done by my four tables, with a great deal less trouble, and much more satisfaction to the buyer.

A Table of British Money.

TABLE I.

Farthings. 1 .. 1 Farthing. 1 | 0 .. 1 Penny.	$\frac{960}{10} = 96$	$\frac{96}{10} = 9\cdot6$	$\frac{9\cdot6}{10} = \cdot96$	·96
1 | 0 | 0 .. 1 Shilling. 1 | 0 | 0 | 0 .. 1 Pound.	$\frac{40}{10} = 4$	$\frac{4}{10} = \cdot4$	$\frac{\cdot4}{10} = \cdot04$	·04
I have dressed the Pound, the Shilling, the Penny, and the Farthing in new Liveries, to make them better Servants.	960 40 1000	96 4 100	9·6 ·4 10·0	·96 ·04 1·00

A Table of British Small Weights,

For Gold, Silver and Jewels.

TABLE II.

Grains.

			1	.1 Grain
		1	0	.1 Scruple
	1	0	0	.1 Dram
1	0	0	0	.1 Ounce

10 Grains make 1 Scruple
10 Scruples .. 1 Dram
10 Drams .... 1 Ounce
10 Ounces .... 1 Pound

A Table of British Large Weights.

TABLE III.

Ounces.

			1	.1 Ounce
		1	0	.1 Pound
	1	0	0	.1 Stone
1	0	0	0	.100 weight

10 Ounces make 1 Pound
10 Pounds .. 1 Stone
10 Stone .... 100 Pound

1000	Pounds.
10000	
100000	
1000000	

A Table of British Measures of Length.

TABLE IV.

Inches.

			1	.1 Inch
		1	0	.1 Foot
	1	0	0	.1 Yard
1	0	0	0	.1 Fathom

10 Inches make 1 Foot
10 Feet ...... 1 Yard
10 Yards .... 1 Fathom

10	Fathoms.
100	
1000	
10000	
100000	

A Table of British Measures of Capacity.

TABLE V.

Cups.

			1	.1 Cup
		1	0	.1 Pint
	1	0	0	.1 Gallon
1	0	0	0	.1 Bushel

10 Cups make 1 Pint
10 Pints .... 1 Gallon
10 Gallons .. 1 Bushel or Barrel

10	Barrels.
100	
1000	
10000	
100000	
1000000	

If a buyer asked the price of a diamond of one hundred grains weight, and was told by the jeweller £9 6*s.* 8*p.* 1*f.* what would be the price of ten grains at that rate?

The question would be answered in the old way by the Rule of Three, but I have found out a much easier way. I will first work it by the old way, and then explain the new method, as follows:—

£ *s.* *p.* *f.* *s.* *p.* *f.*
As a 100 : 9 . 6 . 8 . 1 : : 10 : 9 . 6 . 8 ·1 *Answer.*
10
s. *p.* *f.*
100 | 96810 | 9 . 6 . 8 · 1 *Answer.*
900
681
600
810
800
100
100

By the new method thus:
£ *s.* *p.* *f.*
9 . 6 . 8 . 1

9 . 6 . 8 · 1 *Answer.*

Example A.

I put the nine pounds in the place of shillings, and the six shillings in the place of pence, and the eight pence in the place of farthings, and the one farthing in the place of decimals, and then the answer will read thus—nine shillings six pence eight farthings and one-tenth a farthing.

In each of the four Tables of Weights and Measures, there are or may be, eight or ten different denominations, as 1, 10, 100, 1000, 10000, 100000, 1000000, 10000000, &c.—The calculation on each table may be done the same.

If the answer to a question should require more than the question, the Ascending Reduction may be done as follows:

Example B.

£	*s.*	*p.*	*f.*			*Grains.*	
		9	6	·81..	price of	1	
	9	6	8	·1 ..	price of	10	*see Ex.*
9	6	8	1·......		price of	100	A.
96	8	1			price of ..	1000	
968	1				price of ..	10000	
9681	....				price of	100000	
96810	....				price of	1000000	
968100	....				price of	10000000	

If the price of a hundred weight of Tea be £65 4*s.* 3*p.* what will the price of a stone be, and the price of a pound be, and the price of an ounce be, at that Rate?

Example C.

£.	*s.*	*p.*	*f.*		
65	4	3..........			price of an hundred weight
6	5	4	3......		price of a stone weight.
	6	5	4	· 3	price of a pound weight.
		6	5	·43	price of an ounce weight.
			6	·543	price of the tenth of an ounce.

Ascending Scale. £. s. p. f. *Descending Scale.*

9
9 | | 9
9 | | ·9
9 | 0 | | ·0 | 9
9 | 0 | 0 | | ·0 | 0 | 9
9 | 0 | 0 | 0 | | .0 | 0 | 0 | 9
9 | 0 | 0 | 0 | 0 | | ·0 | 0 | 0 | 0 | 9
9 | 0 | 0 | 0 | 0 | 0 | | ·0 | 0 | 0 | 0 | 0 | 9

* * *

If a lady went to a mercer's shop, and after having chosen her pattern, she asked the price, the mercer said 3*s*. 6*p*. 1*f*. the yard, and she bought six yards six feet and six inches, what did she pay for the whole?

Example D.

£. s. p. f.	price of
3 : 6 : 1	one yard
3 : 6·1	one foot
3·61	one inch
4 : 0 : 0·71	
6	
2 : 4 : 0 : 4·26	*Answer.*

Example E.

	£ s. p. f.
	3 : 6 : 1
price of	6
six yards	2 : 1 : 6 : 6
six feet	2 : 1 : 6·6
six inches	2 : 1·6 6
Ans.	£2 : 4 : 0 : 4·26

These two operations are different answers to the above question.

See the Table of British Measures of Length.

The Table of Measures of Capacity teach how to buy and sell wines, spirits, strong waters, ale, beer, vinegar, oil, &c. and dry wares, as corn, seeds, roots, fruits, salt, coals, sand, oysters, &c. &c.

If a vessel, whose capacity is one thousand ounces when full of a liquor, and that quantity of the liquor cost £2 3*s*. 4*p*. 5*f*. what will a one hundred ounce measure full cost?

Example F.

measures.	£	*s.*	*p.*	*f.*
The price of a 1000 ounces is	2	3	4	5
The price of a 100 ounces is........		2	3	4 ·5
The price of a 10 ounces is...........			2	3 ·45
The price of a 1 ounce is..............				2 ·345

When a buyer asketh the price of any thing that is to be sold by weight or measure, if he wants some ounces, some pounds, or some stones weight, &c. If the buyer wants six pounds of tea, let him ask the price of a stone weight, and the seller says £6 5*s*. 4*p*. 3*f*. the stone.

Example G.

And by directions given,	£.	*s.*	*p.*	*f.*	
the buyer will see one	6 :	5 :	4 :	3	.. one stone
pound is worth		6 :	5 :	4 ·3	one pound
And if multiplied by				6	
The Answer is	£3 :	9 :	2 :	5 ·8	sixpounds

If six inches of silk cost 2*p*. 2*f*. what will six fathoms cost?

***Example* H.**

£.	*s*.	*p*.	*f*.	price of
		2	2	six inches
	2	2	..	six feet
2	2	.....		six yards
22	......			six fathoms
220	......			sixty faths.

***Example* I.**

£.	*s*.	*p*.	*f*.	price of
22	....			six fathoms
2	2	....		six yards
	2	2	....	six feet
		2	2..	six inches
			2·2	six-tenths

In the Table of British Small Weights, ten grains make one scruple, and ten scruples make one dram, and ten drams make one ounce, &c.

In the Table of British Large Weights, ten ounces make one pound, and ten pounds make one stone, and ten stones make one hundred pounds weight, &c.

In the Table of British Measures of Length, ten inches make one foot, and ten feet make one yard, and ten yards make one fathom, &c.

In the Table of British Measures of Capacity, ten cups make one pint, and ten pints make one gallon, and ten gallons make one barrel, &c.

The desirable effect produced by this system, for the assistance of buyers and sellers of any thing sold by weight or measure, when the price is told, by enabling the buyer, without calculation, to find out the price of every higher denomination and every lower denomination in two or three seconds, in short, it instructs people of common capacity to act as merchants.

I have got an universal table of all the real and imaginary monies of every capital place in Europe, Asia, Africa and America, published some years ago in a Geographical Dictionary; but all the tables are very defective and all differ from each other, yet all nations continue to trade together, year after year, without endeavouring to mend what is so miserably bad.

It would be immensely better, if all nations were to adopt the same system of money, weights and measures, for if the different denominations in money, weights and measures were spelt the same for every nation, they would speak the language of all nations, and people, though unable to converse on other subjects, might merchandise with each other.

Ash, Printer, London Bridge.

JUST PUBLISHED,

AN

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